

## **COSPAR ABSTRACT**

**Paper Submitted for:** B1.5-M Future Space Missions to Primitive Bodies

**Organizers:** G. Schwehm (FRG) and J. Zarnecki (UK)

**This Paper is:** ORAL

Thomas C. Duxbury  
183-501  
4800 Oak Grove Drive  
Earth and Space Sciences Division  
Jet Propulsion Laboratory  
Pasadena, CA 91109, USA  
Phone: (818) 3544301  
Telefax: (818) 3540966  
Telex: 67-5429  
Email: TDuxbury@naif.jpl.nasa.gov

### **ABSTRACT:**

#### **Phobos Sample Return Mission**

T. Duxbury<sup>1</sup>, A. Galeev<sup>2</sup>, V. Moroz<sup>2</sup>, A. Zakharov<sup>2</sup>, R. Kremnev<sup>3</sup>, O. Papkov<sup>3</sup>, Yu. Surkov<sup>4</sup>, A. Basilevsky<sup>4</sup>, E. Akim<sup>5</sup>, and M. Marov<sup>5</sup>; 1- Jet Propulsion Laboratory, Pasadena, USA, 2- Space Research Institute, Moscow, Russia, 3- Babakin Research Center, Moscow, Russia, 4 - Vernadsky Institute, Moscow, Russia, 5- Institute of Applied Mathematics, Moscow, Russia

Opportunities exist to launch a PHOBOS spacecraft using a PROTON launch vehicle in 1998-99, 2001 and 2003 to go to Mars and bring back a sample from the surface of Phobos, the inner moon of Mars. The Phobos Sample Return Mission is not only of the highest scientific importance for the return of a sample from a primitive body but provides an early testbed for the technology development needed to support a Mars Sample Return Mission and Mars Human Exploration. The Phobos mission can be flown earlier and easier because Phobos has neither a significant gravity nor an atmosphere as Mars to contend with for landing and departure. The analyses of a Phobos sample returned to earth, expected to be about 0.5 kg, will undergo the most complex and widely varying laboratory investigations which would be unlimited as compared to what can be done in-situ, as was the case for the Lunar samples. The mission and opportunities for international cooperation are described.